Ordering number : ENA1322

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

2SK2628FG — General-Purpose Switching Device Applications

Features

- Low ON-reisitance.
- Low Qg.
- Ultrahigh-speed switching.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		600	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_{Dc}*1	Limited only by maximum temperature	7	A
	I_{Dpack}*2	Tc=25°C (SANYO's ideal heat dissipation condition)*3	6.2	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	24	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C (SANYO's ideal heat dissipation condition)*3	35	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *4	E_{AS}		98	mJ
Avalanche Current *5	I_{AV}		6	A

Note :*1 Shows chip capability

*2 Package limited

*3 SANYO's condition is radiation from backside.

The method is applying silicone grease to the backside of the device and attaching the device to water-cooled radiator made of aluminium.

*4 V_{DD}=50V, L=5mH, I_{AV}=6A

*5 L≤5mH, Single pulse

Marking : K2628

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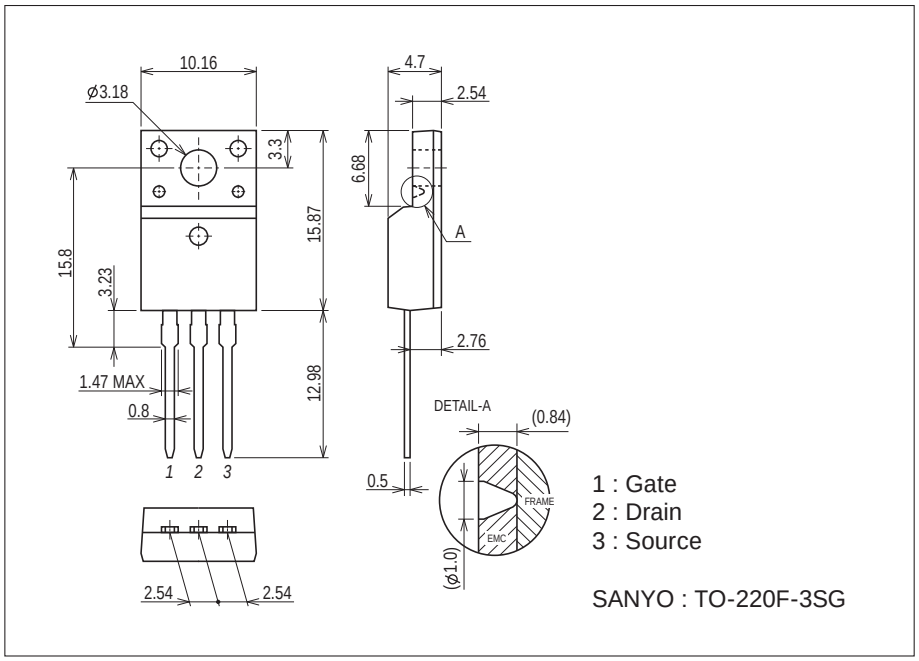
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0V	600			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=480V, V_{GS}=0V			1.0	mA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0V			±100	nA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	3.5		5.5	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=4A	2.0	4.0		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)	I_D=2A, V_{GS}=15V		0.9	1.1	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		1050		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		320		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		180		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		23		ns
Rise Time	t_r	See specified Test Circuit.		35		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		90		ns
Fall Time	t_f	See specified Test Circuit.		35		ns
Total Gate Charge	Qg	V_{DS}=200V, V_{GS}=10V, I_D=6A		30		nC
Diode Forward Voltage	V_{SD}	I_S=6A, V_{GS}=0V		0.85	1.2	V

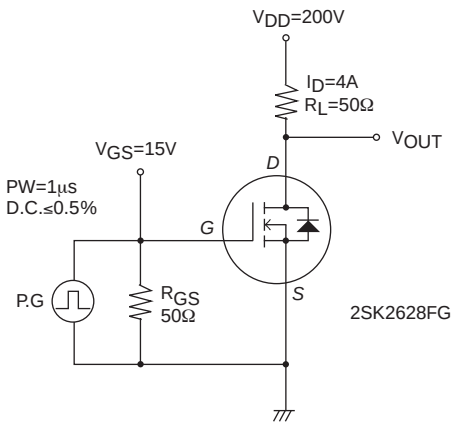
Package Dimensions

unit : mm (typ)

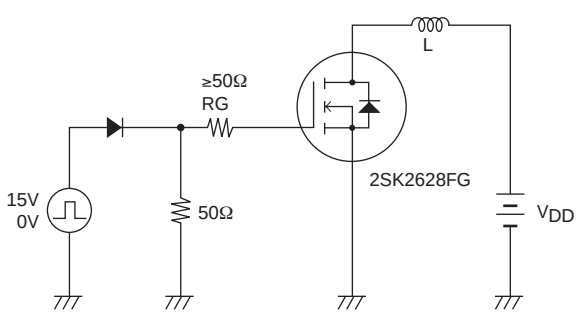
7529-001



Switching Time Test Circuit



Avalanche Resistance Test Circuit



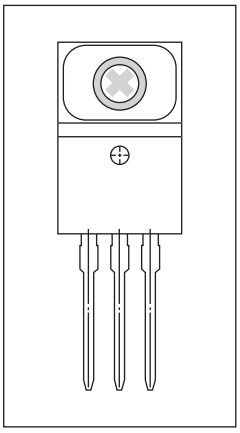
For this package, a part of inner electrode is exposed. Please refer to the package outline for the detailedstructure.
So when mounting the device, please pay enough attention to the isolation with the heatsink.
According to the device mounting method, sometimes the insulation voltage may be decreased.
(refer to the below insulation characteristics)

Insulation / Ta=25°C / RH75%

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Lead & resin insulation *	$V_{ISO}1$	Metal spacer Refer to Fig.1		1600		Vrms
	$V_{ISO}2$	Washer 5.8mm Refer to Fig.2		2100		Vrms
	$V_{ISO}3$	Insulation screw, Insulated washer		3900		Vrms

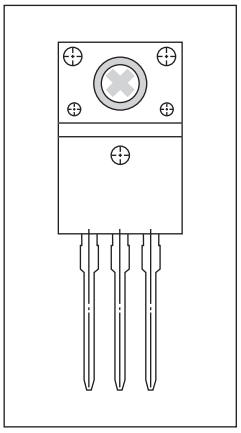
* : AC voltage measurement

Fig.1



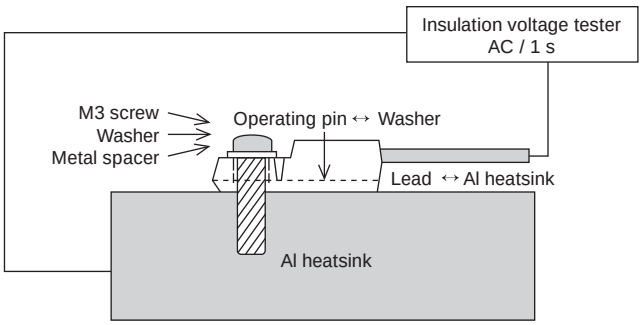
IT14077

Fig.2

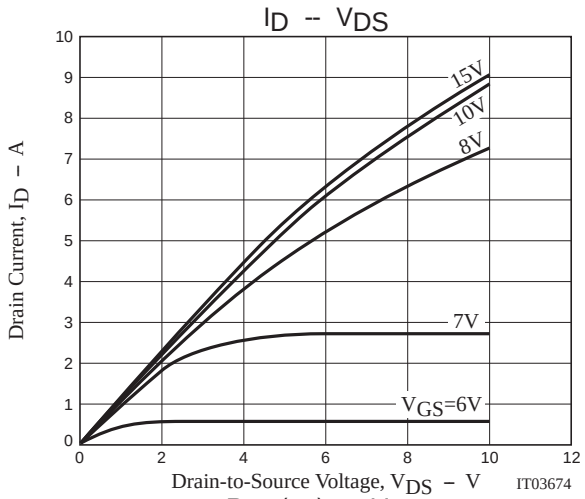


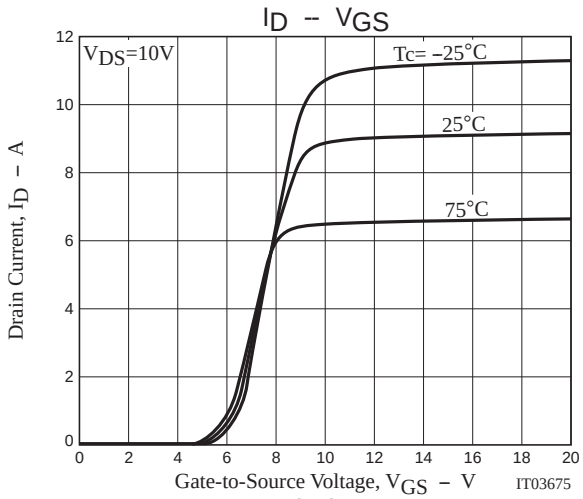
IT14078

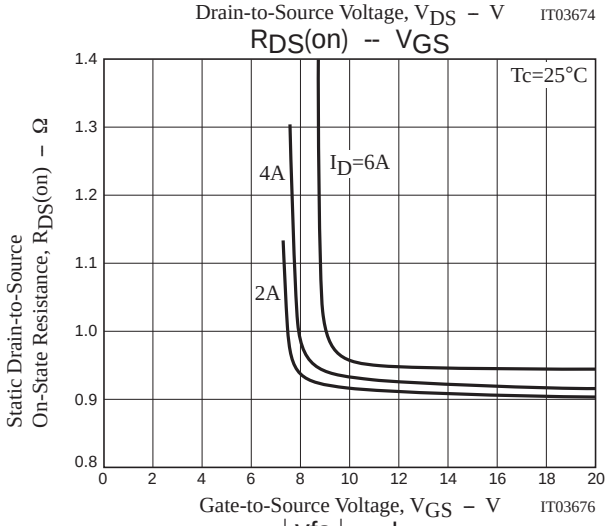
Insulaton measuring diagram

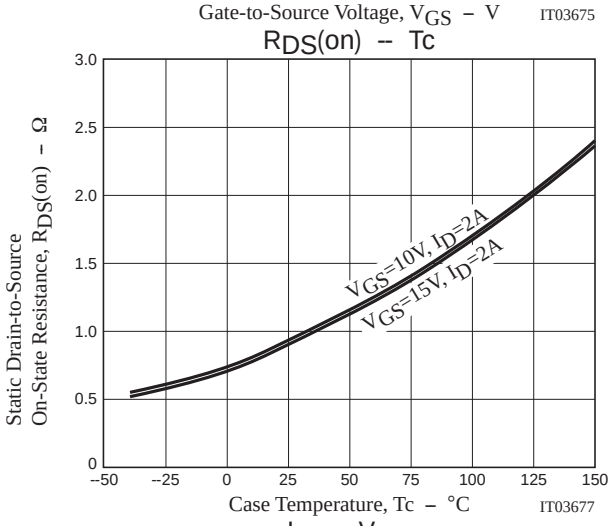


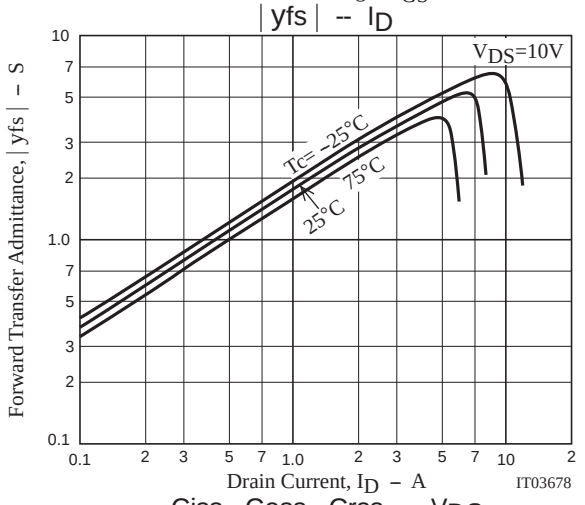
IT14079

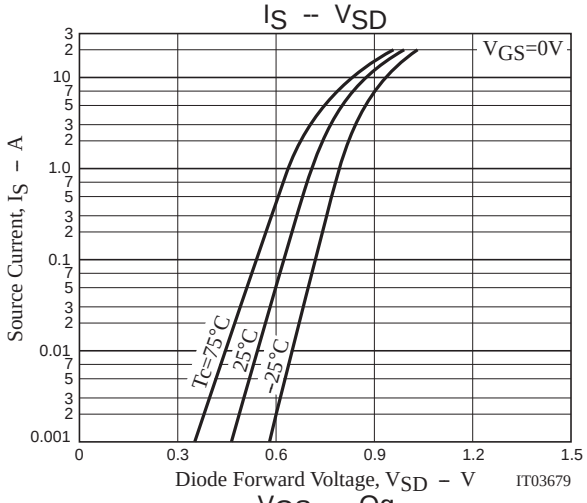

ID -- VDS
Drain Current, ID – A
15V
10V
8V
7V
VGS=6V
Drain-to-Source Voltage, VDS – V
IT03674

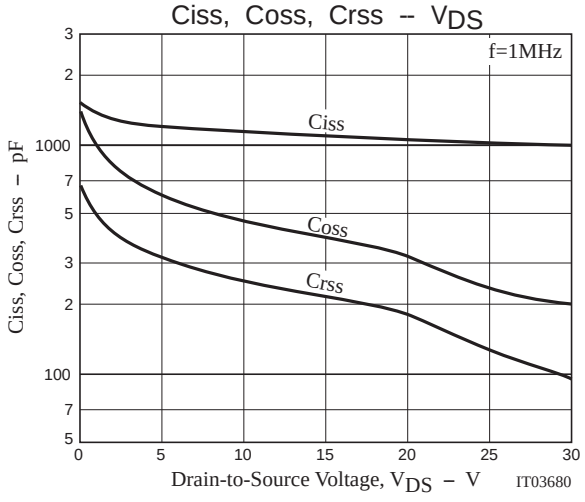

ID -- VGS
VDS=10V
Tc= –25°C
25°C
75°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT03675

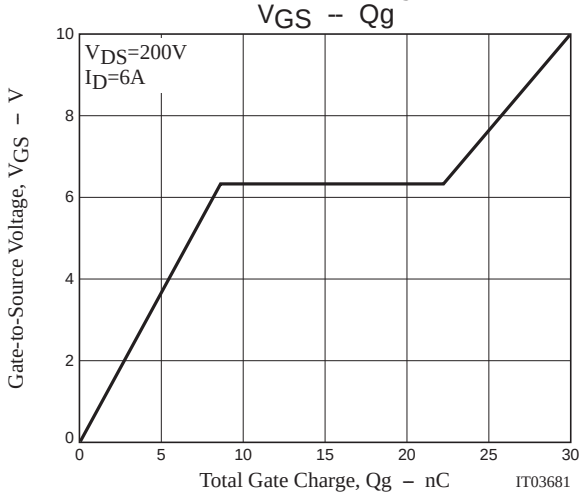

RDS(on) -- VGS
Tc=25°C
ID=6A
4A
2A
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT03676


RDS(on) -- Tc
VGS=10V, ID=2A
VGS=15V, ID=2A
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Case Temperature, Tc – °C
IT03677

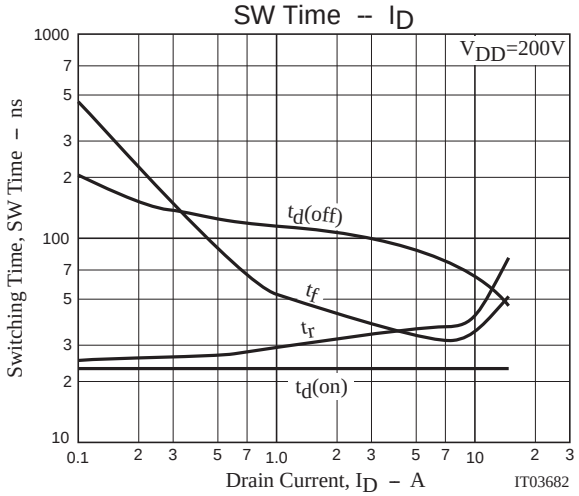

| yfs | -- ID
VDS=10V
Tc= –25°C
75°C
25°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT03678


IS -- VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT03679

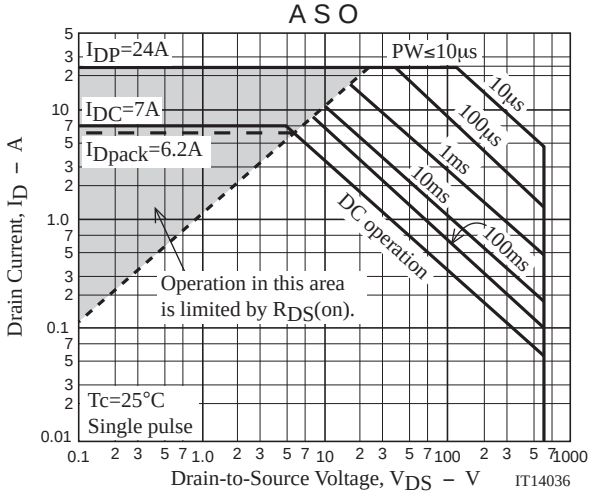

Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT03680


VGS -- Qg
VDS=200V
ID=6A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT03681

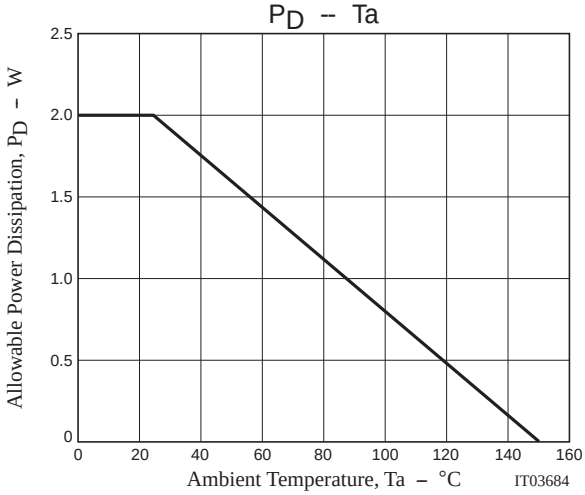
SW Time -- I_D



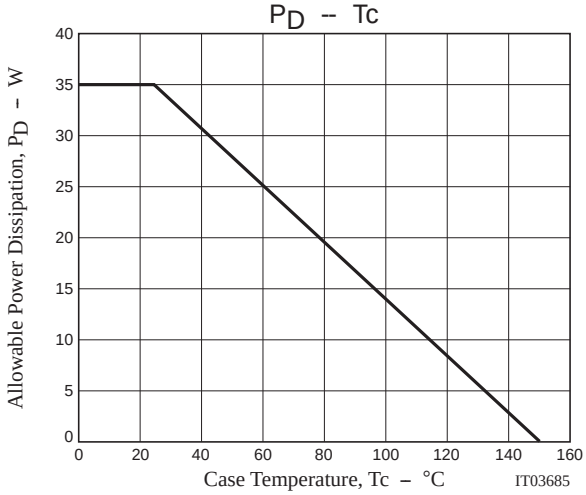
A S O



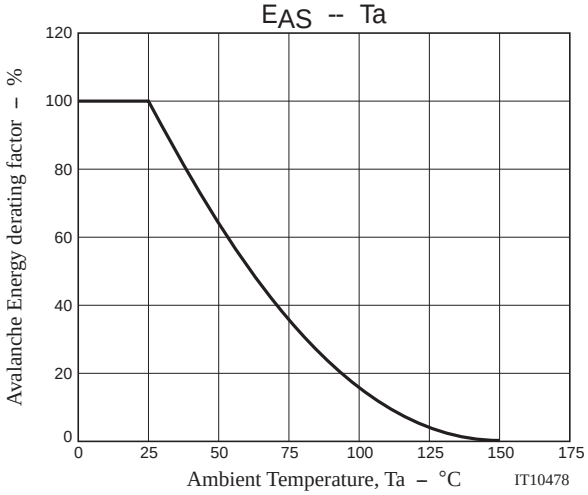
P_D -- Ta



P_D -- Tc



E_{AS} -- Ta



Note on usage : Since the 2SK2628FG is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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